

Power Management

This report provides a summary of the anticipated power requirements for the three (3) primary ORDA configurations, NWS Single Channel, NWS Redundant, and FAA Redundant. Power information for hardware components was obtained from manufacturer datasheets. Legacy power requirements were obtained from the 510 manual.

Table I provides a summary of individual hardware power requirements for the NWS Redundant configuration of the ORDA design. All tables provide worst-case current usage per hardware component. The table is further subdivided into the load per power manager and UPS in each of the two channels.

Table II provides a similar summary of the power requirements for components in the FAA Redundant configuration. Again, current values are provided as worst-case numbers and the loads are divided among the dual channels.

Table III provides a summary of the worst-case power requirements for the single channel ORDA configuration.

Tables IV and V provide power estimates for items present in the Legacy design that have been removed in the ORDA design and a comparison between overall power consumption for the Legacy design versus the ORDA design. The primary components, with their corresponding power requirements, that have been removed in the ORDA design are listed in table IV. Table V shows a quick comparison between expected power consumption in the ORDA design versus the power required for the Legacy design.

Table I: Power Requirements (NWS Redundant)

APC Power Manager #1 (Maximum Current = 12 Amps)					
Item	Quantity	Power(Watts)	Voltage(Volts)	Current(Amps)	Total Amps
KVM/Monitor	1.00	45.00	120	0.38	0.38
Lan Switch	1.00	15.00	120	0.13	0.13
RCP8	1.00	180.00	120	1.50	1.50
RVP8	1.00	180.00	120	1.50	1.50
Blower Fan	4.00	148.80	120	0.31	1.24
PS1+PS2+PS3	1.00	96.00	120	0.80	0.80
Critical Contactor	1.00	112.00	120	0.93	0.93
Totals		776.80	120		6.47

APC UPS #1 (Output Capacity = 950 Watts)					
Item		Power(Watts)	Voltage(Volts)	Current(Amps)	Max
APC Power Manager	1.00	20.00	120	0.17	
Serial Switch	1.00	5.00	120	0.04	
Components from APC		776.80	120	6.47	
Totals		801.80	120		6.68

APC Power Manager #2 (Maximum Current = 12 Amps)					
Item	Quantity	Power(Watts)	Voltage(Volts)	Current(Amps)	Total Amps
KVM/Monitor	1.00	45.00	120	0.38	0.38
Router	1.00	75.00	120	0.63	0.63
Lan Switch	1.00	15.00	120	0.13	0.13
RCP8	1.00	180.00	120	1.50	1.50
RVP8	1.00	180.00	120	1.50	1.50
Blower Fan	2.00	74.40	120	0.31	0.62
PS1+PS2+PS3	1.00	96.00	120	0.80	0.80
Critical Contactor	1.00	112.00	120	0.93	0.93
Totals		777.40	120		6.48

APC UPS #2 (Output Capacity = 950 Watts)					
Item		Power(Watts)	Voltage(Volts)	Current(Amps)	Max
APC Power Manager	1.00	20.00	120	0.17	
Components from APC		777.40	120	6.48	
Totals		797.40	120		6.65

Table II: Power Requirements (FAA)

APC Power Manager #1 (Maximum Current = 12 Amps)			
Item	Power(Watts)	Voltage(Volts)	Current(Amps)
KVM/Monitor	45	120	0.38
Router	75	120	0.63
Lan Switch	15	120	0.13
RCP8	180	120	1.50
RVP8	180	120	1.50
Baytech	36	120	0.30
Totals	531	120	4.43

APC UPS #1 (Output Capacity = 950 Watts)			
Item	Power(Watts)	Voltage(Volts)	Current(Amps) Max
APC Power Manager	20	120	0.17
Components from APC	531	120	4.43
Totals	551	120	4.59

APC Power Manager #2 (Maximum Current = 12 Amps)			
Item	Power(Watts)	Voltage(Volts)	Current(Amps)
KVM/Monitor	45	120	0.38
Router	75	120	0.63
Lan Switch	15	120	0.13
RCP8	180	120	1.50
RVP8	180	120	1.50
Baytech	36	120	0.30
Totals	531	120	4.43

APC UPS #2 (Output Capacity = 950 Watts)			
Item	Power(Watts)	Voltage(Volts)	Current(Amps) Max
APC Power Manager	20	120	0.17
Components from APC	531	120	4.43
Totals	551	120	4.59

Table III: Power Requirements (NWS Single)

APC Power Manager (Maximum Current = 12 Amps)			
Item	Power(Watts)	Voltage(Volts)	Current(Amps)
KVM/Monitor	45	120	0.38
Router	75	120	0.63
Lan Switch	15	120	0.13
RCP8	180	120	1.50
RVP8	180	120	1.50
Totals	495	120	4.13

APC UPS (Output Capacity = 950 Watts)			
Item	Power(Watts)	Voltage(Volts)	Current(Amps) Max
APC Power Manager	20	120	0.17
Serial Port Switch	5	120	0.04
Components from APC	495	120	4.13
Totals	520	120	4.33

Table IV: Power Requirements (Legacy Removed Items)

Item	Power(Watts)	Voltage(Volts)	Current(Amps)
RDA Control	2900	120	24.17
Signal Processing	2000	120	16.67
Receiver	600	120	5.00
VME	350	120	2.92
Total	5850		48.75

Table V: Power Comparison

Item	Power (Watts)	Voltage(Volts)	Current(Amps)
Removed Legacy Components	5850	120	48.75
ORDA NWS Redundant (max)	801.8	120	6.68
Power Saved	5048.2		42.07